

Notice of Allowability

Application No.

10/768,724

Examiner

Eric B. Chen

Applicant(s)

LIU ET AL.

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 20 January 2006.
2. ☒ The allowed claim(s) is/are 1-23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 1/20/2006
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

NADINE G. NORTON
SUPERVISORY PATENT EXAMINER

REASONS FOR ALLOWANCE

1. Claims 1-23 are allowed.
2. The following is an examiner's statement of reasons for allowance for claims 1, 7, and 15: the prior art fails to teach or suggest transferring the first and second patterns in the amorphous carbon layer through the substrate *at the same time*. The closest prior art, Grill, discloses transferring a first pattern in the amorphous carbon layer (column 9, lines 31-33; Figure 7C-7D) and transferring a second pattern in the amorphous carbon layer (78) (column 9, lines 45-50; Figure 7H) in separate steps. Performing the two patterning steps at the same time could not be performed in Graff, because the first pattern in the amorphous carbon layer (78) (Figure 7C) overlaps with the second pattern in the amorphous carbon layer (78) (Figures 7E-7F). Graff transfers the first pattern in the amorphous carbon layer (78) for the purpose of etching a via in (12) (column 9, lines 45-50; Figure 7E). Graff transfers the second pattern in the amorphous carbon layer (78) for the purpose of etching a larger cavity in (12) and transferring the via to (8) (column 9, lines 58-67; Figures 7H-7I). Thus, because etching the first and second patterns in the amorphous carbon layer through the substrate at the same time would fundamentally alter the dual damascene structure, there is no motivation or suggestion of transferring the first and second patterns in the amorphous carbon layer through the substrate at the same time, as in the context of claims 1, 7, and 15.
3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Preliminary Amendment

4. Applicants' Preliminary Amendment, filed July 7, 2005, has been acknowledged and entered into the record.

Response to Arguments

5. Applicants' arguments (Applicants' Remarks, page 9), filed Jan. 20, 2006, with respect to the rejection of claim 1 under 35 U.S.C. 103(a) as being unpatentable over Grill, in view of Bosner, have been fully considered and are persuasive. Applicants have pointed out that there is no teaching or suggestion of "transferring the first and second patterns in the amorphous carbon layer through the substrate at the same time" (page 8, second paragraph). The rejection of claims 1-6 has been withdrawn.

6. Applicants' arguments (Applicants' Remarks, page 10), filed Jan. 20, 2006, with respect to the rejection of claims 7 and 15 under 35 U.S.C. 103(a) as being unpatentable over Grill, in view of Bosner, in further view of Wolf, have been fully considered and are persuasive, as discussed above. The rejection of claims 7-23 has been withdrawn.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Chen whose telephone number is (571) 272-

Art Unit: 1765

2947. The examiner can normally be reached on Monday through Friday, 8AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EBC
Feb. 27, 2006

EBC

NADINE G. NORTON
SUPERVISORY PATENT EXAMINER

Norton